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H B 133 134

valleys of the north-west are the wide "vloers" of Carnarvon and Calvinia, more or less well-defined flat areas a few miles wide and thinly covered with brackish silt.

H B 137 311

Owing to the great range in rainfall and altitude there is a considerable diversity of conditions in this region. While the north-western parts are little better than desert, the more favoured districts to the south and east are well covered with permanently-occupied farms, although agriculture is restricted to the alluvial tracts. The vegetation is everywhere of a semi-desert character. The greater part of the country supports only a sparse and incomplete covering of shrublets and stunted, skeleton-like bushes, most of which belong to the family *Compositae*. In spite of their unpromising appearance when burnt up by the rays of the summer sun, they afford excellent sustenance for stock even in the driest seasons, and at the present time they provide nourishment to millions of sheep and goats, supporting one of the great wool growing industries of the world. Thorny plants, succulents, bulbous and tuberous plants abound in places, but trees, principally Acacias, appear as a rule only along the dry sandy river-beds. Grasses are frequent in the rainy season, but nowhere form the dominant feature of the vegetation.

H B 132 133 137

The High Veld of the Orange Free State and the Southern Transvaal is essentially an extension eastwards of the Upper Karroo, but has a much better rainfall. Lying for the most part over 5,000 feet above sea-level, and with an invigorating climate, it is perhaps the most favourable region in the Union for a white population. The rainfall ranges from about 20 to 35 inches, and occurs principally during the summer months in thunderstorms. The winters are dry and cold, and severe frosts are by no means uncommon. The streams are often perennial. The country generally presents a most monotonous type of scenery, consisting of vast rolling plains, although as one travels westward towards drier regions the surface becomes flatter or more varied by steep-sided flat-topped hills. It is essentially grass country and for the most part devoid of indigenous trees, except along the river-banks, which are frequently clothed with willows and mimosas; shrubs are found on the koppies, while growing among the grasses are large numbers of bulbous and tuberous plants.

H B 133

The Coastal Regions

The country between the escarpment and the ocean is considerably smaller than the interior plateau, but as regards climate and structure

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Environment and Culture

H B 105

The possibilities of exploitation this region offers to people lacking the highly-developed technical equipment of modern European civilization vary considerably. The ways in which the Bushmen and Hottentots utilize the natural resources of their surroundings will be discussed in some detail in later chapters. Here a rapid survey may be made of the factors conditioning the distribution and mode of life generally of the natives inhabiting the country.[1]

H B 105 311 312

The most important consideration naturally is water. Animal and plant life are there in sufficient quantity to support human existence, provided a supply of water is near. Man in his primitive condition is dependent entirely on surface water for the satisfaction of his needs, for he has not the means now possessed by civilized man for getting at the water in the depths below. The amount of surface water therefore determines the density of population in any one area, and the water available in a given area, together with the density of the vegetation, determines the number and size of the settlements in that area.

The character of the country, moreover, limits at once the types of culture that can become indigenous there. South Africa even under modern conditions can only carry on agriculture in certain parts, and most of the country could never support a primitive population of pure agriculturists. It is only in the well-watered districts to the north and east and along the south coast that native agriculture has been developed to any extent. On the other hand, there is an abundant fauna and a sufficiency of vegetable life to afford good subsistence to men. The type of culture then that we would *a priori* expect to find here would be one based largely on hunting and collecting. This is exactly what we do find. The abundance of game formerly existing in South Africa makes it readily comprehensible that hunting at one time played a great role in all parts of the country, and therefore that hunting peoples were distributed all over its surface. All the native peoples of South Africa, whatever other means of subsistence they have, rely to some extent at least for food on the products of the chase and on the edible bulbs and roots of the veld.

H B 105 311

A country, however, which can support great numbers of buck

[1] For special discussions of the South African environment in relation to man, cf. Passarge, op. cit., pp. 162–75; *idem*, "Die Grundlinien im ethnographischen Bilde der Kalahari-Region," *Z. Ges. Erdk. Berlin*, 1905, pp. 20–36, 68–88; (Mrs.) A. W. Hoernlé, "South-West Africa as a Primitive Culture Area," *S. Afr. Geog. J.*, vi (1923), pp. 14–28.

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and other grass and herb-eating animals will also support other species of these animals, provided that conditions such as the absence of the tsetse fly and other pests are favourable. Hence we also find pastoral tribes, who have come in from other regions bringing with them great herds of cattle and immense flocks of sheep and goats. One important point must, however, be noticed. Country which, under modern farming conditions, will only carry a small herd of cattle, sheep, and goats, used formerly to carry large herds of well-fed antelopes and zebras. The explanation is that each wild species is specially adapted to living on certain bushes or plants, and that many natural foodstuffs useless to farm stock were made use of by one species or another of wild game. It must also be remembered that the wild game was not restricted by farm boundaries; it was free to shift its ground according to the seasons and the supplies of food and water. For the same reasons a nomadic life was imposed on the native tribes keeping domestic animals, although nowadays with the extension of the European settlements the areas over which free movement is possible have become greatly restricted.

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Viewed in this light, the natural regions of South Africa which have been described above are seen to differ widely in their value for culture. Certain parts of the country, such as the Namib desert strip and the interior of Bushmanland, are largely uninhabitable. The rainfall in both is exceedingly slight, and there is practically no surface water all the year round. In parts of the Namib, however, the river-courses from the mountains of the South-West African plateau periodically carry water, which is dammed up in a few places by rocky outcrops in the river beds, and above all there is the */naras* melon, whose fruit is sufficiently succulent to provide a substitute for water. Agriculture is completely out of the question. The thin scattered population which the region can support is forced to lead a nomadic hunting life, although in the east, towards the borders of the plateau, the grass which flourishes during the rainy season occasionally permits of pastoralism.

The greater part of the Middle and Southern Kalahari lacks surface water during the dry season only. The water supply at other times is generally sufficient to permit of temporary settlements, although the porous sand covering of the surface absorbs all the rainfall, so that except in the pans and other waterholes the standing water rapidly disappears. The region is sparsely inhabited, and mostly by nomadic peoples. Agriculture is again impossible, save in a few tracts to the

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east, where the soil is more favourable, but the rainfall is too uncertain to enable grain to be grown with a reasonable prospect of success. The abundance of grass in many parts, especially during the rainy season, affords good pasture to cattle, but the region is above all an excellent hunting ground, and formerly at least it was extraordinarily rich in game. Hence its inhabitants are in the first place hunting peoples, and their life is conditioned by the movements of the game. At the beginning of the rainy season the animals wander out of the permanently-watered regions encircling the desert into its sandy plains, where water is found only in pans, pools, and waterholes. The hunters follow them. As the dry season sets in and the water in the pans begins to shrink, part of the game returns to the watered regions, part of it, however, continues to live in the plains on the *tsama* melons and other succulent plants—and the hunters do the same.

In the well-watered Northern Kalahari three great streams, the Okavango, Kwando, and Zambesi, overflow on to the flat land, in some parts continuously, in others periodically, and thus give rise to an extensive region of swamps. This marshy region is excellent hunting and fishing ground. Its population, more numerous and densely settled than in the rest of the Kalahari, is therefore primarily concerned with these two pursuits. The natives indeed are actually forced to resort in part to fishing, since for motives of security they live mainly on the small islands between the swamps and the rivers. The periodic rise of the rivers annually floods wide stretches of the country, resulting in displacements and wanderings of the game. Consequently, the natives also must roam, partly because their habitations are flooded out, partly because they must follow the animals. Both agriculture and pastoralism are also carried out in parts of the country. The cattle pasture in the sandveld away from the swamps, while the marshy region can only be used for the cultivation of crops, since for wide stretches it is infested by the tsetse.

The upland regions encircling the Kalahari basin on the south-east, south, and west, have for the most part a scanty rainfall. The permanent settlement of this belt during the dry season is therefore restricted to the scattered waterholes, which occur in river beds, on mountain slopes or in depressions on the hard soil. Waterless stretches from 40 to 100 miles in extent are no rarity, so that the settlements are frequently distributed far apart over the land. Here, as in other regions of South Africa, hunting must depend on the movements of

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the game. In the more arid parts the animals in the dry season concentrate in vast numbers about the rivers and waterholes and pans, to disperse widely as soon as the rains make life possible elsewhere. The same features of alternate concentration and dispersal can be observed in the life of the purely hunting tribes. The pastoral resources are on the whole excellent, there being no lack of grass or edible shrubs even during the dry season, and consequently cattle-keeping peoples are able to lead a favoured existence in these uplands. Agriculture is also practised to some extent, but is confined to the scattered alluvial tracts. As a means of subsistence it is rendered precarious by the frequent droughts which characterize the region. These often exercise a harmful effect on pastoralism as well, partly because of the ensuing lack of water, but mainly because the pasture is completely destroyed in many parts of the country. The plateaus of the Orange Free State, Cape Province, and Southern Bechuanaland are especially exposed to such catastrophes, but they are often enough marked in South-West Africa also, particularly in Great Namaqualand.

Further east and along the south coast the rainfall is high enough to place cultivation on a safe footing, while the country, where it is not covered with bush or forest, is composed of extensive grass flats which can be used as pasture land. Consequently, both agriculture and pastoralism are equally developed, the former being carried out on a far greater scale than in other parts of South Africa. Here, therefore, we find the most thickly settled zones, and the population is mainly sedentary, even although the pastoral tribes must still to some extent lead a nomadic life.

Migration Routes

The geographical situation of South Africa has an obvious bearing upon the racial history of the country. Cut off by vast uninterrupted stretches of water from ready access on the west, south, and east, its most direct link with other regions is overland to the north. In the north-west the great forest regions of the Congo impose an effective barrier upon extensive human migrations, so that it is principally from the north-east that invading peoples have been able to enter the country.[1] The East African highlands are connected with the south by a favourable route passing between the escarpments in the east with their sharp descent to the fertile but fever-stricken coastlands,

[1] Cf. Passarge, *Z. Ges. Erdk. Berlin*, 1905, pp. 32–3; *idem*, *Südafrika*, pp. 163–7.